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PATENT APPLICATION

ATTORNEY DOCKET NO. 200309104-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Antonio S. Cruz-Uribe et al.

Application No.: 10/620,860

Filing Date: July 15, 2003

Confirmation No.: 9136

Examiner: TENTONI, Leo B.

Group Art Unit: 1732

Title: A Method and a System for Producing an Object Using Solid Freeform Fabrication

Mail Stop Appeal Brief - Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF REPLY BRIEF

Transmitted herewith is the Reply Brief with respect to the Examiner's Answer mailed on July 20, 2006 .

This Reply Brief is being filed pursuant to 37 CFR 1.193(b) within two months of the date of the Examiner's Answer.

(Note: Extensions of time are not allowed under 37 CFR 1.136(a))

(Note: Failure to file a Reply Brief will result in dismissal of the Appeal as to the claims made subject to an expressly stated new ground rejection.)

No fee is required for filing of this Reply Brief.

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Typed Name: Rebecca R. Schow

Signature:

Respectfully submitted,

Antonio S. Cruz-Uribe et al.

By

Steven L. Nichols

Attorney/Agent for Applicant(s)

Reg No. : 40,326

Date : September 20, 2006

Telephone : 801-572-8066

Rev 10/05 (ReplyBrf)

DUPLICATE

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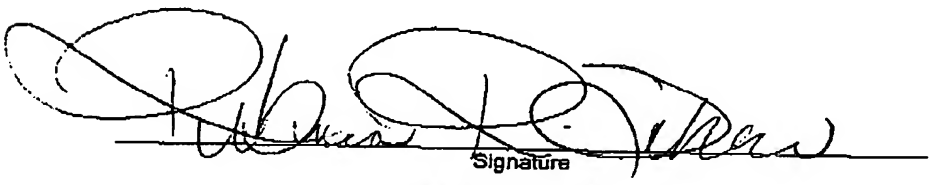

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3. Reply Brief (8 pages)

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REPLY BRIEF

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Sir:

This is a Reply Brief under Rule 41.41 (37 C.F.R) in response to the Examiner's Answer of July 20, 2006 (the "Examiner's Answer").

Claims 7 and 27:

Claim 7 recites:

> A method for producing an object through solid freeform fabrication comprising:
> *selectively depositing* containment material to form a boundary structure *with a high precision dispenser*; and
> depositing a flowable object build material into said boundary structure with a low precision dispenser.

(emphasis added).

Independent claim 27 similarly recites:

> A method of producing an object through solid freeform fabrication comprising:
> *selectively depositing* containment material to form a plurality of perimeter structures defining an outer surface of said object *with a high precision dispenser*: and
> dispensing a volume of fluid build material interior to said perimeter structures.

(emphasis added).

As Appellant has demonstrated in Appellant's Brief, the applied prior art of Kieronski and Greul both fail to teach or suggest *selectively depositing* containment material to form a boundary or perimeter structure *with a high precision dispenser* as claimed.

The Examiner's Answer addresses Appellant's arguments by stating that "the recitation 'selectively depositing' does not exclude the solid freeform fabrication technique of stereolithography." (Examiner's Answer, p. 6). The Examiner's Answer gives no further explanation or support for this demonstrably incorrect statement.

Appellant notes that it is well-settled law that the inventor may be his or her own lexicographer. *Lear Stegler, Inc. v. Aeroquip Corp.*, 733 F.2d 881, 888-89, 221 U.S.P.Q. 1025 (Fed. Cir. 1984). Stated another way, the meaning of words used in the claims is determined by the meaning given to those words in the specification. *Markman v. Westview Instruments*, 116 S. Ct. 1384 (1996); *McGill, Inc. v. John Zink Co.*, 736 F.2d 666, 674 (Fed.

Cir. 1984); *ZMI Corp. v. Cardiac Resuscitator Corp.*, 884 F.2d 1576, 1580, 6 U.S.P.Q.2d 1557, 1560-61 (Fed. Cir. 1988).

According to Appellant's specification, "selective deposition methods include using a dispensing mechanism to deposit, at particular locations, individual drops of material known as voxels." (Appellant's specification, paragraph 0002). In stereolithography, individual drops of material are *not* deposited at particular locations with a dispensing mechanism. Rather, in stereolithography, a laser is used to selectively solidify a portion of the surface of a liquid plastic pool on a moving platform. No individual drops are deposited and are not deposited to particular "selected" locations.

Therefore, contrary to the position taken in the Examiner's Answer, the recitation "selectively depositing," as defined and used by Appellant, clearly *does* exclude stereolithography as taught by Kieronski. Thus, Appellant's claims do not read on the prior art cited. For at least these reasons, the rejection of Appellant's claims should not be sustained.

The Examiner's Answer goes on to state that "the preamble of claims 7 and 27 recites 'solid freeform fabrication' and does not further limit the claims to a particular solid freeform fabrication technique." (Examiner's Answer, p. 6). This is entirely and obviously incorrect. Reading further into claim 7 and 27, *beyond the preamble*, each claim expressly recites "selectively depositing containment material to form" a structure. The Examiner's Answer expressly acknowledges that stereolithography and selective deposition modeling are two distinct solid freeform fabrication techniques. (Examiner's Answer, p. 6) ("[S]tereolithography and selective deposition modeling are two of the common techniques used in solid freeform fabrication."). Thus, it is entirely unclear how the Examiner's Answer can allege that the claims are not directed to a particular solid freeform fabrication technique,

i.e., techniques that include "selectively depositing" material. As demonstrated above, this does *not* include stereolithography. For at least these additional reasons, the rejection of Appellant's claims should not be sustained.

With regard to the rejection based on Greul, the Examiner's Answer introduces a new translation of the German reference which has not been of record previously. Referring to this new translation, the Examiner's Answer argues that "page 4 of the English-language translation [of Greul] teaches a layered deposition technique." Obviously, a layered deposition technique is distinguishable from Appellant's "selectively depositing" technique.

Quoting the actual text of the translation, Greul teaches "The freeforming production of the hollow mold can preferably be carried out in the process of rapid prototyping by means of layered deposition or galvanic deposition of a material, preferably a metallic material." (Translation of Greul, p. 4). "The hollow mold is formed in various layers in the process of freeforming molding." (Translation of Greul, p. 5). "The coating [of each layer] can occur galvanically by means of thermal spraying or sputtering." (Translation of Greul, p. 8).

As will be appreciated by those of skill in the art, such a layered deposition of material does not fit within the definition of "selectively depositing." Depositing layers of material, for example by spraying or sputtering, is clearly not "using a dispensing mechanism to deposit, at particular locations, individual drops of material known as voxels." (Appellant's specification, paragraph 0002).

For at least these additional reasons, the rejection of Appellant's claims based on Greul should not be sustained.

Claims 1 and 39:

With respect to claims 1 and 39, the Examiner's Answer merely reiterates the unfounded position that it is reasonable to include stereolithography within the meaning of "selectively depositing." As demonstrated above, that is not the case. The Examiner's interpretation of "selectively depositing" to include a laser stereolithography process in which no individual drops of material are deposited at particular locations is clearly unreasonable. (Appellant's specification, paragraph 0002).

Claim 37:

Independent claim 37 recites:

> A method of producing a porous object though solid freeform fabrication, said method comprising:
> selectively depositing a first material with a high precision dispenser to form an outer boundary structure;
> selectively depositing a smaller, internal boundary structure with said high precision dispenser; and
> filling said outer boundary structure with a solidifiable build material, wherein said filling is performed by a low precision dispenser.

Appellant has previously established that Kieronski does not teach or suggest "selectively depositing" material to form a structure. The Examiner's Answer refers unhelpfully to Kieronski at the figures, and col. 2, line 1 to col. 4 line 63. (Examiner's Answer, p. 7). This is essentially a citation to the entire patent without any meaningful explanation of how the Examiner is viewing Kieronski in this instance. Because Kieronski does not teach or suggest "selectively depositing" material to form a structure, the rejection of claim 37 should not be sustained.

Claim 8:

Claim 8 recites "depositing a sparse array support structure to support said boundary structure." None of the cited prior art references teach or suggest depositing a sparse array support structure to support a deposited boundary structure.

The Examiner's Answer implicitly concedes this failing of the prior art of record by stating that "a sparse array support structure is either inherent in Kieronski or Greul et al, or would have been obvious." (Examiner's Answer, p. 7). Both arguments are incorrect and legally insufficient to support a rejection of claim 8.

"Inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999) (citations omitted). "[T]he examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (BPAI 1990) (emphasis in original); see also, MPEP § 2112 (quoting Levy). There is no showing, nor could there reasonably be, that Kieronski's system "*necessarily*" produces the "sparse array support structure" recited in claim 8 and defined in Appellant's specification at, for example, paragraph 0039. Thus, the rejection of claim 8 cannot be sustained on the grounds that the subject matter claimed, though not taught by Kieronski, is inherent therein.

With regard to obviousness, where the examiner relies on a single reference under § 103, it has been held insufficient to merely state that it would be obvious, or a mere matter of design choice, to modify the disclosure to include the features of the claimed invention. *In re Mills*, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990). "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re*

Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. (emphasis added). Accord. M.P.E.P. § 706.02(j). For at least these reasons, the rejection of claim 8 should not be sustained on the grounds that the subject matter claimed, though not taught by Kieronski, would have been obvious. There has been no such showing made on the record.

Claim 18:

Claim 18 recites "wherein said removing said boundary structure comprises melting said boundary structure." None of the cited prior art references teach or suggest melting a boundary structure.

As with claim 8, the Examiner's Answer implicitly concedes this failing of the prior art of record by stating that "removing support structure is either inherent in Kieronski or Greul et al, or would have been obvious." (Examiner's Answer, pp. 7-8). Assuming for the sake of argument that the Examiner is correct and that removing support structure is inherent or obvious in view of the prior art, that does not account for what Appellant has actually claimed. Appellant is not merely claiming removing support structure in claim 18, but has recited removing the boundary structure by "melting said boundary structure." Thus, the comments made in the Examiner's Answer are entirely inapposite to what is actually claimed.

In sum, the Examiner has failed to indicate how or where the cited prior art teaches the subject matter recited in claim 18. For at least this reason, the rejection of claim 18 should not be sustained.

Claim 29:

Claim 29 recites "dispensing a volume of fluid build material comprises adjusting said volume with a feedback control device." None of the cited prior art references teach or

suggest a feedback control device as claimed. As before, the Examiner's Answer merely alleges that, though not taught by the prior art, this subject matter is nevertheless inherent or obvious. This argument is insufficient for the same reasons given above.

In view of the foregoing, it is submitted that the final rejection of the pending claims is improper and should not be sustained. Therefore, a reversal of the Final Rejection of December 20, 2005 is respectfully requested.

Respectfully submitted,

DATE: September 20, 2006

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Rebecca R. Schow